***Department of Structural Engineering***
***University of California, San Diego***
***SE 290 Seminar***

Dr. DongHwan Lee
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General Atomics Aeronautical Systems, Inc.

**"Flutter: To Be or Not To Be"**
Monday, November 20, 2017
1:00 pm - 1:50 pm, Pepper Canyon Hall, Room 122

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# Abstract

Have you heard of flutter, which is one of the most important concepts in dynamic aeroelasticity? If you are an ordinary person living an ordinary life, you could live all your days without knowing about the details of these important phenomena. However, if you want to be an aerospace engineer, you will soon recognize how important aeroelasticity is even in everyday life. Perhaps if you were lucky enough to sit in the window seat of an airplane, you might have had the chance to watch its oscillating wing. You might have also wondered why the wing oscillation always damps out even through severe thunder storms or high wind gust. With this natural thought process of an aerospace engineer, you'll find that one of the most fundamental and yet most important design concepts that allows an aircraft to fly safely in harsh environments is none other than aeroelasticity. Theodore von Kármán once famously stated that some fear flutter because they do not understand it, and some fear it because they do. This presentation discusses fundamental

concepts of flutter along with theoretical background that explains how to predict flutter and verify it through flight flutter testing.

# Biography

Dr. DongHwan (DH) Lee is a Technical Director in Flutter and Aeroelasticity at General Atomics Aeronautical Systems, Inc. (GA-ASI). GA-ASI is located here in Poway and is a manufacturer of UAS family called “Predator.” As a subject matter expert in aeroelasticity, Dr. Lee has been working on flutter, Aeroservoelasticity (ASE), aeroelastic loads analysis for various UAV platforms developed in GA-ASI. Dr. Lee has been working on aeroelasticity area more than 20 years. He earned Bachelor of Science degree from Inha University and a Master of Science degree from KAIST, both in Aerospace Engineering in South Korea. In 2002, he earned Ph. D. from Purdue University in School of Aeronautics and Astronautics and extended his research further for 10 months as a post-doctoral fellow at Purdue University. With his research experience in aeroelasticity, he joined ZONA Technology, Inc. in Scottsdale, Arizona. ZONA is a home of ZAERO software renowned as an aeroelastic analysis tool from industry and academia. As an engineering specialist, Dr. Lee had involved numerous research projects and conducted ZAERO training and customer support. Escaping from heat wave in Arizona, he joined General Atomics Aeronautical System, Inc. (GA-ASI) 7 years ago and has worked numerous UAVs; MQ-9 Reaper and its variances, MQ-1C Gray Eagle, and Avenger. He is coaching Wright Stuff which is one of the Science Olympiad events for Middle School.

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*Sponsored by Professor Alicia Kim*
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